

L 8404-65

ACCESSION NR: AT4043161

apart. The vertical rate of ascent for both helicopter and radiosonde was approximately 2—3 m/sec. Measurements were made at altitudes of 0.1, 0.2, 0.3, 0.4, 0.5, 0.7, 1.0, and 1.5 km during the morning, afternoon, and evening hours. After determining differences in temperature and humidity readings, the mean square error was computed for each standard height for each ascent. The results obtained showed that: 1) the difference between the recordings of the A-22-IV radiosonde and the mechanical meteorograph were less than between the RZ-048 radiosonde and the meteorograph; 2) the increase in error above 1.0 km was due to the quality and type of instrument used, the method of ascent, and the prevailing atmospheric conditions; 3) errors in temperature readings in the 0.2—0.3-km layer were associated with the differences in the time of ascent of the radiosonde and meteorograph. The author proposes that further research of this type be carried out for periods of temperature inversions. Orig. art. has: 3 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00

ATD PRESS: 3101

ENCL: 00

SUB CODE: ES, EC

NO REF SOV: 000

OTHER: 000

Card 2/2

L 52712-65 FSS-2/EWT(1)/FCC/EEC(t)/EED-2 Pm-l/Pn-l/Pac-l/Pi-l/Pj-l/Pk-l/  
 Fl-l RB/GW/WR  
 ACCESSION NR: AT5012364 UR/2531/65/000/173/0076/0087

62  
 61  
 B+1

AUTHOR: Brylev, G. B.; Vasil'chenko, I. V.; Selitskaya, V. I.; Fodorov, A. A.

TITLE: Simultaneous radar and aerological observations in the lower 1.5-km layer of the atmosphere

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 173, 1965. Vosprosy radiometeorologii (Problems in radiometeorology), 76-87

TOPIC TAGS: clear sky radar, meteorological radar, aerological observation/atmospheric inhomogeneity, inversion layer, lower atmosphere, atmospheric turbulence

ABSTRACT: Several authors have investigated various aspects of radar reflection from clear skies (A. A. Chernikov, Trudy TsAO, no. 48, 1963; Atlas D., Journal of Atmospheric and Terrestrial Physics, v. 15, no. 3/4, 1959). However, these studies left open the question of the use of clear-sky radar observation for the expansion of general radar-derived meteorological information. To test the feasibility of such uses, simultaneous radar and aerological studies in the lower 1.5-km layer of the atmosphere were carried out during the July-September period of 1963. The usual radar system was equipped with an auxiliary recording device capable of registering the envelope of the radar signals reflected from clear skies. The

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L 52712-65

ACCESSION NR: AT5012364

article covers the methods of observation, the processing of results, and the pertinent theory and tabulates the results. Preliminary discussions indicate that: 1) inhomogeneities in the index of refraction of the air are caused by convective and turbulent motion within the 1.5-2.0 km layer of the atmosphere; 2) peculiarities in the altitude distribution of reflected signals are related to definite variations in wind velocity, relative humidity, and temperature inversions within the layers under consideration; 3) altitudes at which one finds temperature and humidity pulsations also identify layers with greater radar reflectance; the maximum altitude of radar reflections  $H_{max}$  agrees approximately with the uppermost boundary of the layer within which one still observes such pulsations; 4) in two observed cases the lower inversion boundaries coincided with  $H_{max}$ ; apparently, the equipment used could not detect variations in the index of refraction within and above the inversion layers; and 5) none of the existing devices is capable of detecting pulsations within relatively thin atmospheric layers. The need for further simultaneous observations of the type discussed above is emphasized. Orig. art. has: 7 formulas, 4 figures, and 4 tables. [08]

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00  
NO REF SOV: 005  
Card 2/2

ENCL: 00  
OTHER: 003

SUB CODE: ES, DC  
ATD PRESS: 4011

L 64451-65 EWT(1)/FCC GW

ACCESSION NR: AT5019742

UR/2531/65/000/172/0142/0156

AUTHOR: Vasil'chenko, I. V.; Selitskaya, V. I.

44,55

44,55

TITLE: Errors in aerological measurements and a comparison of data acquired by various methods on expeditions at the site of the Shchekinskaya GRES

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 172, 1965. Voprosy atmosferno diffuzii i zagryazneniya vozdukha (Problems of atmospheric diffusion and contamination), 142-156

TOPIC TAGS: aerological measurement, balloon measurement, helicopter measurement, mechanical meteorograph, electrical meteorograph, meteorological balloon

44,55,12

ABSTRACT: Data are presented concerning the errors in the balloon and helicopter set-ups used for ground layer atmospheric observations. Following a detailed theoretical discussion of the errors during 1) balloon meteorograph, 2) helicopter-mounted mechanical meteorograph, and 3) helicopter electrical meteorograph observations, the authors compare a) the aerostatic and gradient data; b) the balloon and helicopter meteorograph data; c) the wind velocity data; and d) the temperature and wind measurements by means of balloons in Sovetsk and the 300-meter meteorological tower of the Institute prikladnoy geofiziki, AN SSSR (Institute for Applied Geophysics, AN SSSR) located about 100 km from

Card 1/1

44,55

31  
28  
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L 64452-65

ACCESSION NR: AT5019742

Sovetsk. Numerous explanations are given for the observed discrepancies. Orig. art. has: 25 formulas, 3 figures, and 9 tables. 3

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory) 44,55

SUBMITTED: 00

ENCL: 00

SUB CODE: ES

NO REF SOV: 007

OTHER: 000

*llc*  
Card 2/2

SELITSKAYA, Ye.S.; SHANINA, N.A., red.; MAYOROV, V.V., tekhn.red..

[Basic features in the hydrological regime of the North Sea]  
Osnovnye chery gidrologicheskogo rezhima Severnogo moria. Moskva,  
Gidrometeor.izd-vo (otd-nie), 1957. 62 p. (Moscow. Gosudarstvennyi  
oceanograficheskii institut. Trudy, no.39) (MIRA 10:10)  
(North Sea--Hydrology)

SELITSKYA, Ye.

Internal water. Natural. gidrol. no. 6:11-12 Jo '57. (LRA 10:8)  
(aves)

SELITSKAYA, Ye.S.

Study of sea level fluctuations. Mezhdunar.geofiz.god no.7:  
60-64 '59. (MIRA 13:2)  
(Oceanographic research)



z (7)

AUTHOR:

Selitskaya, Ye. S.

SOV/50-59-9-8/16

TITLE:

Some Possibilities of Determining Water-temperature Variations  
With the Tidal Period

PERIODICAL:

Meteorologiya i gidrologiya, 1959, Nr 9, pp 36 - 38 (USSR)

ABSTRACT:

Whereas for the investigation of tidal fluctuations of the level, long series of hourly observations are available, only irregular and not comprehensive data are at hand for investigating the not less complicated process of temperature fluctuations. Therefore, such investigations cannot be accurate unless certain methods are used. A simple and convenient method by A. I. Duvanin (Ref 1) was used here to calculate the tides in advance. Duvanin showed that the 6 astronomic factors determining the tidal lift can be replaced by 2. This method is pointed out here in brief. The summer observations in the North Sea, the Belt, the Kattegat, and the Skagerrak were used as data. The observations in the North Sea were made in August 1952, those in the Belt, Kattegat and Skagerrak on the floating lighthouse North Trindel were made through 18 years. On the basis of this investigation, it is found that the scheme used

Card 1/2

Some Possibilities of Determining Water-temperature Variations With the Tidal Period SOV/50-59-9-8/16

in practice for the advance calculation of tidal fluctuations of the level can also be used for the advance calculation of the tidal temperature fluctuations. An analysis of the observations particularly made for this purpose is, however, required. There are 3 figures and 1 Soviet reference.

Card 2/2

SELITSKAYA, Ye. S.

Temperature variations of the surface water in different  
regions of the North Sea [with summary in English]. Trudy  
GOIN no.48:104-111 '59. (MIRA 13:6)  
(North Sea--Temperature)

SELITSKAYA, Ye. S.

PHASE I BOOK EXPLOITATION

SOV/4742

Moscow. Gosudarstvennyy okeanograficheskiy institut

Trudy. vvp. 53 (Transactions of the State Oceanographic Institute. No. 53)  
Moscow, Gidrometeoizdat, 1960. 114 p. Errata slip inserted.  
700 copies printed.

Sponsoring Agencies: Glavnoye upravleniye Gidrometeorologicheskoy sluzhby pri  
Sovete Ministrov SSSR; Gosudarstvennyy okeanograficheskiy institut.

Ed. (Title page): A.I. Pyvanin; Ed. (Inside book): M.I. Sorokina; Tech. Ed.:  
I.M. Zarkh.

PURPOSE: This publication is intended for oceanographers, naval personnel, and  
engineers concerned with planning and designing naval constructions.

COVERAGE: This issue of the Transactions of the State Oceanographic Institute  
contains articles dealing with the spatial characteristics of tide phenomena  
and methods for precalculating tides according to astronomical parameters.  
Individual articles present the first results of investigations of the  
seasonal oscillation in sea level on the basis of data obtained during IGY.

Card 1/3

SOV/4742

Transactions of the State Oceanographic Institute, No. 53

The Foreword was written by A. Yushchak, Director of the State Oceanographic Institute. A.I. Duvanin supervised the work of D.U. Vapnyar, which was completed, as was the work of Ye. S. Selitskaya, in the Otdel urovnya i techeniy GOIN (Section of Sea Level and Currents, State Oceanographic Institute). The work of M.P. Vin'kov was carried out in the Vychislitel'nyy tsentr Mekhaniko-matematicheskogo fakulteta MGU (Computer Center of the Department of Mechanics and Mathematics, Moscow State University). The articles were prepared for publication by A.D. Perlovskaya. References follow each article.

TABLE OF CONTENTS:

Vapnyar, D.U. Influence of Friction on Tidal Phenomena in Shallow-Water Regions	5
Vin'kov, M.P. Compilation of Constant-Action Tide Tables on Perforator-Type Computers	59
Selitskaya, Ye. S. Problem of Seasonal Oscillation in the Level of the World Ocean	104

The author presents the results of investigations of the seasonal oscillation in sea level according to IGY and other data.

Card 2/3

Transactions of the State Oceanographic Institute, No. 53

SOV/4742

Determination of the harmonic constant of the solar annual wave ( $S_a$ ) and the solar semi-annual wave ( $S_{sa}$ ) was used as the basis of a method for investigating the seasonal oscillation in sea level. Analysis of harmonic constants suggests that the seasonal oscillation in sea level has common features at different points of similar circulation zones. Within the limits of those zones, the intra-annual changes in the seasonal oscillation of the sea level are analogous in all points. The author states that the analysis of the oscillation in steric sea level was based on limited data. With increased data, such an analysis should be helpful for the investigation of the dynamic processes of the oceans.

AVAILABLE: Library of Congress

Card 3/3

JA/dwm/mas  
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SELITSKAYA, Ye.S.; ANTROPOVA, L.V.

Methods for analyzing tidal fluctuations of the water temperature  
in the sea. Trudy GOIN 67:104-117 '62. (MIRA 15:7)  
(Ocean temperature) (Tides)

SELITSKAYA, Ye.S.; ANTROPOVA, L.V.

Effect of internal tidal waves on the daily change in water temperature. Trudy GOIN no.77:46-56 '64. (MIRA 18:1)



AL'TSHULER, V.M., kand. geogr. nauk; ANTROPOVA, L.V., st. inzh.;  
BUKHTEYEV, V.G., st. inzh.; VOLODINA, Z.G., ml. nauchn.  
sotr.; RZHONSNITSKIY, V.B., kand. geogr. nauk; SELITSKAYA,  
Ye.S., kand. geogr. nauk; FUKS, V.R., kand. geogr. nauk;  
BREKHOVSKIKH, Yu.P., red.; TIMONOV, V.V., red.

[Study of tidal phenomena in a heterogeneous sea] Issledo-  
vanie prilivnykh iavlenii v neodnorodnom more. Leningrad,  
Gidrometeoizdat, 1965. 183 p. (MIRA 18:8)

1. Leningradskoye otdeleniye Gosudarstvennogo okeanografi-  
cheskogo instituta (for Al'tshuler). 2. Murmanskoye uprav-  
leniye gidrometeorologicheskoy sluzhby (for Antropova).  
3. Leningradskiy gidrometeorologicheskoy institut (for  
Bukhteyev). 4. Gosudarstvennyy okeanograficheskoy institut  
(for Volodina, Selitskaya). 5. Leningradskiy gosudarstven-  
nyy universitet imeni A.A.Zhdanova (for Rzhonsnitskiy,  
Fuks).

SELITSKIY, A., inzh.; ZHELUDKOV, A., inzh.

Unit for scavenging hydraulic brakes. Avt.transp. 42 no.2:19 F '64.  
(MIRA 17:3)

SHEVCHENKO, V.D.; SELITSKIY, F.I.

Use of epoxy resins for the correction of founding defects.  
Lit. proizv. no.12:33 D '61. (MIRA 14:12)  
(Founding--Defects)  
(Epoxy resins)

SELITSKIY, F.I.

Improving semiautomatic machines for the cleaning of casting.  
Lit. proizv. no.6:42-43 Je '62. (MIRA 15:6)  
(Foundries--Equipment and supplies) (Metals--Finishing)

SELITSKIY, G.

SELITSKIY, G., inzh.

Extinguishing fires of electric units by means of air mechanical  
foam. Pozh.delo 3 no.10:17-18 0 '57. (MIRA 10:11)  
(Fire sprinkles)

SELITSKIY, G., inzh.

Foam extinguishers. Pozh. delo 5 no.10:25-26 0 '59.

(MIRA 13:2)

(Fire sprinklers)

KHARLAMPOVICH, G.D.; RUS'YANOVA, N.D.; MEL'NIKOVA, V.I.; GORDEYEVA, Z.K.;  
Prinimali uchastiye: MIRONOV, V.I., laborant; MAKAROVA, Z.A.,  
laborant; KUDRYASHOVA, R.I., student; TATARUOV, G.P., student;  
SELITSKIY, G.A., student; IL'CHENKO, P.P., student; MOSKOVSKIKH, V.V.,  
student; YEVSEYEV, Ye.I., student

Studying the new method of ammonia recovery in an experimental  
industrial installation. Koks i khim. no.2:34-38 '62.  
(MIRA 15:3)

1. Ural'skiy politekhnicheskiy institut.  
(Coke-Oven gas) (Ammonia)

L 58977-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPR/ENP(j)/T Pc-l/Pr-l/Ps-l/Pt-7

WW/RM

ACCESSION NR: AP5014696

UR/0191/65/000/0006/0053/0054

678.674.04-419:677.521.01:536.468

AUTHOR: Al'shits, I.M.; Gladkaya, L.A.; Grad, N.M.; Selitskiy, G.Ye.

TITLE: Flame-resistance tests of polyester fiberglass reinforced plastics

SOURCE: Plasticheskiye massy, no. 6, 1965, 53-54

TOPIC TAGS: fire resistant plastic, fire test, fiberglass reinforced plastic, polyester plastic, aluminum alloy, wood

ABSTRACT: The tests were carried out on plates of polyester fiberglass reinforced plastics (FRP) measuring 1000 x 900 x 6 mm under conditions approaching those of an accidental fire. The reinforcing material was T<sub>1</sub> glass cloth; the binders were PN-3 resin and PN-1S, PN-3S and MN-3S self-extinguishing resins. A stand constructed for the fire tests is illustrated and its operation is described. Plates made of FRP based on PN-1S, PN-3S, and MN-3S ignited more slowly than did plates based on PN-3, and after the direct action of the flame was discontinued, the combustion of the material ceased very rapidly. The aluminum alloy AMg-5 was tested for comparison. It was found that the flame resistance of FRP based on unsaturated polyester resins having no

Card 1/2



L 58977-65

ACCESSION NR: AP5014696

self-extinguishing properties exceeds the flame resistance of ordinary wood and of the AMg-5 aluminum alloy. The use of self-extinguishing resins instead of ordinary polyester resins in the FRP increases the flame resistance of the latter and converts it from a combustible material to a fire retardant. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 002

OTHER: 000

Card 2/2 *dm*

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SELITSKY																										A. PROCESSES AND PROPERTIES INDEX																									
6.7																										2																									
<p>The dependence of the vapor tension of liquids on the external pressure. I. A. Selitskiy. <i>J. Phys. Chem.</i> (U. S. S. R.) 5, 781 (1951). Theoretical. The lowering of the vapor pressure of liquids and solids as a function of external pressure or of capillary tube diam. is considered. F. H. Rathmann</p>																																																			
ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION																										ALUMINUM																									
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<p>SELITSKIY I. A. PROCESSES AND PROPERTIES IN...</p>									
<p>INDICATING THE CORROSION SUBSTANCE: Storage-battery plate. I. A. Schtskil. Russ. 50,343, Jan. 31, 1937. Construction details.</p>									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>									
<p>GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>									

GERGHIKOV, Boris Anisimovich; KONSTANTINOV, Mikhail Mikhaylovich; SELITSKIY,  
Iosif Abramovich; YEZHKOV, V.V., redaktor; LARIONOV, G.Ye., tekhnicheskiiy redaktor

[Manufacture of lead batteries] Proizvodstvo svintsovykh akkumuliatorov.  
Moskva, Gos. energeticheskoe izd-vo, 1954. 215 p. [Microfilm]  
(Storage batteries) (MLRA 8:2)

SELITSKIY, I.A.

~~SECRET~~

Equation of state for liquids. Zhur.fiz.khim. 29 no.7:1221-1226  
Jl '55. (MLRA 9:3)

(Liquids)

SELITSKIY, I. A.

Equation for calculating heats of vaporization. I. A. Selitskiy. *Zhur. Fiz. Khim.* 31, 513-14(1957).—An equation was derived for calcg. the heat of vaporization. Calcd. values are given for  $H_2O$ ,  $EtOH$ ,  $CO_2$ , and these are compared with exptl. values. There is good agreement between the results. J. Rovtar Leach

SELITSKIY, I. A., CAND TECH SCI, "CAPACITANCE OF POSITIVE  
PLATES AND INITIAL <sup>discharge</sup> ~~DISRUPTIVE~~ VOLTAGE OF A LEAD BATTERY."  
Moscow, 1960. (ACAD SCI USSR, INST OF ELECTROCHEM<sup>istry</sup>). (KL,  
2-61, 212).

-178-

YANCHENKO, V.S., Inzh.; SHAYTSKIY, I.A., kand. tekhn. nauk

Effect of the branching of the current conducting lattice on the  
operation of the plates of a lead storage battery. Elektrotekh-  
nika 35 no.5:42-44 My'64 (MIRA 1:43)



SERGEYEVA, L.S. ; SKLITSKIY, I.A.

Current distribution in a porous electrode of a lead cell.  
Zhur. fiz. khim. 39 no. 1:204-206 Ja '65. (MIRA 19:1)

1. Filial Vsesoyuznogo akkumulyatornogo instituta. Submitted January 20, 1964.

SELITSKIY, I.A.; YANCHENKO, V.S.

Limiting values of potential and current density in the inner layers  
of a porous electrode. Elektrokhimiya 1 no.6:701-702 Je '65.

(MIRA 18:7)

1. Filial Gosudarstvennogo soyuznogo nauchno-issledovatel'skogo akkumula-  
tornogo instituta.

SELITSKIY, I., kand. tekhn. nauk; YANCHENKO, V.S., inzh.

Effect of current density and the conditions of sulfuric acid diffusion on the capacity of the plates of a lead cell battery. Elektro-  
tekhnika 36 no.8:41-43 Ag '65. (MIRA 18:9)

SELITSKIY, S. S., Cand Tech Sci -- "Study of the clutch-rod  
properties of caterpillar movement on mineral soils." Minsk,  
1961. (Acad of Agri Sci BSSR. Belorus<sup>Belarus</sup> Sci Res Inst of Agri)  
(KL, 8-61, 249)

- 305 -

SHTURMAN, Ya.P.; SELITSKIY, S.S.; MAKHMUDOV, Yu.A.

Control device fo an output printer. NTI no.1:25-27 '64.  
(MIRA 17:3)

SELITSKIY, Yu. A.

USSR/Physics

Card : 1/1

Authors : Komar, A. P., and Selitskiy, Yu. A.

Title : Experiments with an ion projector

Periodical : Dokl. AN SSSR, 96, Ed. 5, 957 - 958, June 1954

Abstract : It was suggested that a proton (ion) projector be used for studying structural changes in the surfaces of W, Mo, Fe and other monocrystals instead of an electron projector, because the resolving power of the former is much higher. Pictures taken with the help of proton and electron projectors are given for comparison. Four references. Photos.

Institution : Acad. of Sc. USSR. Physico-Technical Institute, Leningrad

Presented by : Academician, P. I. Lukirskiy, March 15, 1954

SELITSKIY, Yu. A.

PROTOPOPOV, A.N.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.

14, 6 Me  $\gamma$  neutron fission cross section of Th<sup>232</sup> and U<sup>237</sup>.  
Atom.energ. 4 no.2:190-191 F '58. (MIRA 11:4)  
(Nuclear fission) (Neutrons)

50-283

Radioactive Isotopes

Radioactive Isotopes. Radiology Institute

Trudy, L. II. (Transactions of the Radiology Institute, Academy of Sciences USSR, Vol. 9). Moscow, Izd-vo AN SSSR, 1959. 387 p. Errata slip inserted. 1,700 copies printed.

Ed.: N.A. Perfilov, Doctor of Physical and Mathematical Sciences; Ed. of Publisher: House: G.M. Arnt Tech. Ed.: A.V. Shirova.

PURPOSE: The volume is intended for physicists.

CONTENTS: The book represents volume 9 of the Transactions of the Radiology Institute and contains the results of studies conducted at the Institute chiefly from 1955 to 1959. There are a number of articles dealing with the study of nuclear reactions conducted with particles of different energies ranging from several eV up to hundreds of MeV. Others treat different problems of the physics of neutron interaction with matter. Results of studies of various neutron sources, neutron energy distribution in a moderator (water), and other problems connected with the theory of neutron interaction with matter are presented. The majority of the articles are concerned with problems of method. The authors provide a complete description of the construction of equipment and of the results of tests performed under laboratory conditions. No parametrizations are mentioned. References accompany individual articles.

Shirov, V.P. Uranium fission due to high excitation energy 45

Shirov, V.P. Fission of heavy nuclei ( $Z \geq 73$ ) due to high excitation energy 50

Prokhorov, A.N., Yu.A. Solov'yev, and G.M. Solov'yev. Gamma Section for 55

Fission of Uranium Induced by Fast Neutrons  
Mastlov, Yu.K., and A.N. Plazenskiy. Study of Gamma Rays of Certain Neutron Sources 61

Mastlov, Yu.K., and A.N. Plazenskiy. Study of Gamma Ray Spectrum of Po-Be Neutron Source 72

Antonyuk, E.M., A.N. Prokhorov, and B.M. Shuryayev. Study of Gamma Rays Absorbing the Reaction of  $^{235}\text{U}$  by Thermal Neutrons 78

Kuznetsov, I.I., A.N. Petrovskiy, and N.A. Pok. Cobalt Radio for Ag<sup>107</sup> and Ag<sup>109</sup> 84

Pok, N.A., N.A. Petrovskiy, and Yu.F. Lomonov. Analysis of a Neutron Field of Uniform Density 87

Kozlov, N.I., N.A. Pok, N.A. Petrovskiy, and Yu.F. Lomonov. Neutron Energy Distribution in the Water Containing the Source 91

Kozlov, N.I., Yu.F. Lomonov, and N.A. Pok. Measurement of Diffusion Length of Thermal Neutrons in Water 104

Kozlov, N.I., N.A. Pok, and N.A. Petrovskiy. K.A. Petrovskiy, and Yu.F. Lomonov. Neutron Source 107

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 113

Pok, N.A., Yu.F. Lomonov, Yu.F. Petrovskiy, N.A. Petrovskiy, and N.A. Petrovskiy. Radiating Neutron Sources for  $^{235}\text{U}$ ,  $^{239}\text{Pu}$ ,  $^{241}\text{Am}$ ,  $^{241}\text{Pu}$ ,  $^{241}\text{Am}$ , and  $^{241}\text{Pu}$  Source 120

Petrovskiy, N.A. Determining the Concentration of Radioisotope Neutron Source in Radiometric Measurements of Radioactive Preparations 125

Petrovskiy, N.A. The Role of Thermal and Epithermal Neutrons in Geophysical Measurements of Radioactive Preparations 131

Petrovskiy, N.A., Yu.F. Lomonov, N.A. Petrovskiy, and Yu.F. Lomonov. Neutron Source for  $^{235}\text{U}$  and  $^{239}\text{Pu}$  136

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 142

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 147

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 150

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 153

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 156

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 159

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 162

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 165

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 168

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 171

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 174

Lomonov, Yu.F. Measuring the Number of Neutrons Emitted by a Radioisotope Source 177



SOV/120-59-4-13/50

AUTHORS: Protopopov, A. N., Selitskiy, Yu. A., Solov'yev, S.M.

TITLE: Ultraviolet Radiation Converters in a Gas Scintillation Counter

PERIODICAL: Priory i tekhnika eksperimenta, 1959, Nr 4, pp 66-69 (USSR)

ABSTRACT: The compounds used are: quaterphenyl, tetraphenylbutadiene, sodium salicylate, and POPOP. The fluorescence decay curves of these substances are examined. Results are given for neutron-induced fission in  $^{235}\text{U}$ . The counter is filled with xenon; the design is shown in Fig 1, in which the source is at the top, the valve is on the right, and the end-window photomultiplier (type FEU-33) is at the bottom. The pressure used is near atmospheric. The compounds are deposited in various ways on the walls of the counter and (if they are transparent) on the window to the photomultiplier. The optimum thickness is given as  $60 \text{ mg/cm}^2$ . The table gives the response to  $\alpha$ -particles from  $^{241}\text{Am}$  without converter, with tetraphenyl-butadiene, with quaterphenyl, with sodium salicylate, with POPOP, and with quaterphenyl again. The first

Card 1/3

30V/120-59-4-13/50

# Ultraviolet Radiation Converters in a Gas Scintillation Counter

Column gives the relative light output; the second gives amplitude resolution (in %) for 5.5 MeV  $\alpha$ -particle. The notes state that the converter was on the inside of the quartz window, and on the outside, respectively. Fig 2 shows the poisoning effects produced by vapours of the converters: a) sodium salicylate, b) quaterphenyl, and c) POPOP. The times are in days. Fig 3 shows the amplitude resolution for the fission fragments produced from  $^{235}\text{U}$  by 15 MeV neutrons (the broken line represents the actual energy distribution). The decay time is nearly independent of the converter (about  $10^{-8}$  sec). The converter to be used must be chosen to suit the conditions

Card 2/3

SOV/120-59-4-13/50

Ultraviolet Radiation Converters in a Gas Scintillation Counter  
of the experiment. The paper contains 3 figures, 1 table,  
and 5 references, all English.

ASSOCIATION: Radiyevyy institut AN USSR (Radium Institute of the  
Academy of Sciences)

SUBMITTED: June 30, 1958.

Card 3/3

PROTOPOPOV, A.N.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.

Fission cross-section of uranium for fast neutrons. Trudy Radiy.  
inst.AN SSSR 9:55-60: '59. (MIRA 14:6)  
(Uranium)

ARTEM'YEV, Yu.M.; BARANOV, I.A.; BLINOV, M.V.; KUZNETSOV, M.I.; PROTOPOPOV,  
A.N.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.; SHIRYAYEV, B.M.; EYSMONT, V.P.

Low voltage neutron generator. Trudy Radiev.inst.AN SSSR 9:134-  
140 '59. (MIRA 14:6)

(Neutrons)

21(7)

AUTHORS:

Protopopov, A. N.; Selitskiy, Yu. A.; SOV/89-6-1-9/33  
Solov'yev, S. M.

TITLE:

Cross Section of the Fission of  $\text{Am}^{241}$  by Neutrons With an  
Energy of 14.6 MeV (Secheniye deleniya  $\text{Am}^{241}$  neytronami s  
energiyey 14.6 Mev)

PERIODICAL:

Atomnaya energiya, 1959, Vol 6, Nr 1, pp 67 - 68 (USSR)

ABSTRACT:

Americium is precipitated electrolytically on a platinum  
disk. The target of 15 mm diameter is placed at a distance  
of 30 mm from the neutron source. The neutrons originate  
from the reaction  $\text{T(d,n)He}^4$ . A quantity of 12  $\mu\text{g}$  americium  
was used. The  $\text{Pu}^{239}$  content of the preparation was less than  
0.6%.  
The measuring methods used for determining neutron flux  
and for counting fissions are described by reference 4. The  
fission fragments were measured in a gas scintillation counter  
which was filled with xenon. Transformation of the ultra-  
violet light flashes of the xenon into visible light was  
brought about by means of quaterphenyl, which was applied

Card 1/2

Cross Section of the Fission of  $\text{Am}^{241}$  by Neutrons  
With an Energy of 14.6 MeV

SOV/89-6-1-9/33

to the interior of the counter. The light flashes are recorded by a multiplier  $\text{FEU} - 33$ . The pulses originating from the  $\alpha$ -particles are conveyed to a rapid-action discriminator which is fitted with crystal diodes of the type  $\text{Dg-EE}$ . The pulses are broadened, amplified, and fed into a single-channel catalyzer. The statistical error committed when counting the fission products amounted to 2%. The fission cross section for  $\text{Am}^{241}$  for 14.6 MeV neutrons was determined as amounting to  $\sigma = 2.35 \pm 0.15$  b. The target was produced by G. I. Khlebnikov. A not irradiated target was measured by V. G. Nedovesov in a magnetic  $\alpha$ -spectrometer. There are 1 figure and 4 references, 1 of which is Soviet.

SUBMITTED: September 22, 1958

Card 2/2

24(5)

AUTHORS:

Protopopov, A. N., Baranov, I. A.,  
Selitskiy, Yu. A., Eysmont, V. P.

SOV/56-36-6-47/66

TITLE:

The Influence of Nuclear Shells on the Distribution of the  
Kinetic Energy of Fragments in Fission by Fast Neutrons  
(Vliyaniye yadernykh obolochek na raspredeleniye kineticheskoy  
energii oskolkov pri delenii na bystrykh neytronakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 6, pp 1932-1933 (USSR)

ABSTRACT:

The authors of the present "Letter to the Editor" report on  
experimental investigations of the distribution of the entire  
kinetic energy of the fragments in a fission of  
 $U^{238}$  by 14.9 Mev neutrons. The results obtained are compared  
with those obtained for a  $U^{235}$ -fission by 14.1 Mev neutrons  
and those obtained from the spontaneous disintegration of  $Cf^{252}$ .  
Measurements were carried out by means of a double ionization  
chamber. From the experimental half width of kinetic energy  
the charge distribution, the neutron recoil effect, the  
fluctuations of the number of evaporated neutrons, the instru-  
mental resolving power, and the mass ratio were determined.

Card 1/2



The Influence of Nuclear Shells on the Distribution of SOV/56-36-6-47/66  
the Kinetic Energy of Fragments in Fission by Fast Neutrons

The thus found dependence of the average kinetic energy  $E$  and the half width of its distribution  $\Delta E$  on the mass ratio  $A_1/A_2$  of the fragments are shown by figure 1 (compared with the curves obtained for  $U^{235}$ -fission). The curves take an analogous course, and in all cases the curve  $E(A_1/A_2)$  and the curve  $\Delta E(A_1/A_2)$  have a maximum at a mass ratio of  $1.25 \pm 1.3$ . Figure 2 shows the distribution of the kinetic energy of the fragments in  $U^{235}$ -fission by thermal neutrons and of the spontaneous disintegration of  $Cf^{252}$  obtained by measuring the time of flight. It was found that the kinetic energy attains its highest value when the heavy fragment has a mass number near 132. This nucleus probably consists of closed shells of 50 protons and 82 neutrons. It may thus be assumed that the degree of closure of the nuclear shells influences the size of the fragments. There are 2 figures and 6 references.

SUBMITTED: February 21, 1959  
Card 2/2

llllll

S/120/62/000/005/029/036  
EO32/E314

11/750  
AUTHORS: Baranov, A.I., Blinov, V.A., Lepnev, G.P. and  
Selitskiy, Yu.A.

TITLE: Vacuum evaporation of materials onto thin organic  
films

PERIODICAL: Pribery i tekhnika eksperimenta, no. 5, 1962,  
173 - 174

TEXT: A method is described for the removal of heat from  
thin organic films so that materials with high melting points can  
be deposited by vacuum evaporation onto the films. The authors  
have used collodion films, 10 - 30  $\mu\text{g}/\text{cm}^2$  thick, attached to light  
dural rings with the aid of shellac. A ring carrying the film  
was placed on the polished end of a solid brass cylinder and the  
whole assembly was inserted into a vacuum system. After the  
pressure was reduced to 0.1 mm Hg, the film was charged by  
placing an electrode at about 1500 V near it, so that a very  
low discharge was produced. The results was that the film came  
into very close contact with the supporting brass cylinder. The  
molecular cohesive force between the film and the brass surface  
Card 1/2

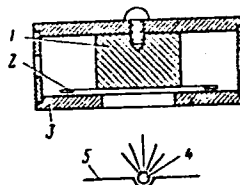
Vacuum evaporation of ....

S/120/62/000/005/029/036  
E032/E314

was sufficiently large for the film to remain in tight contact with the brass surface, even when the latter was turned upside down, in which position the high melting-point material was evaporated onto it. The overall system is illustrated schematically in the figure, in which 1 is the polished brass cylinder, 2 is the ring carrying the film, 3 is the screen, 4 is the substance to be evaporated and 5 is a tantalum evaporating boat. The brass cylinder was found to be an efficient heat sink and the system has been used to produce uniform films of uranium and thorium up to  $250 \mu\text{g}/\text{cm}^2$  thick. Chromium and iron films have also been obtained ( $\sim 100 \mu\text{g}/\text{cm}^2$ ). There is 1 figure.

SUBMITTED: December 3, 1961

Fig.



Card 2/2

42556

S/089/62/013/005/008/012  
B102/B104

24.7000  
24.6830  
AUTHORS:

Blinov, V. A., Karamyan, S. A., Matveyev, O. A., Nemilov, Yu. A.,  
Selitskiy, Yu. A.

TITLE: On some peculiarities of measuring the energy spectra of  
 $\alpha$ -particles and fission products with semiconductor detectors

PERIODICAL: Atomnaya energiya, v. 13, no. 5, 1962, 476-478

TEXT: Semiconductor detectors of charged particles have various known advantages. Chatham-Strode et al., however, have found that these detectors cause a low-energy tail in the pulse-height spectrum of monochromatic  $\alpha$ -particles (IRE Trans. Nucl. Sci., 8, 59, 1961). In the tail region the integral count amounts to about 1% only. This effect being attributed to the presence of certain traps in the pn junction which reduce the pulse heights, the reduction was now studied for  $\alpha$ -particles and fission fragments. All measurements were made with semiconductor surface-barrier detectors designed in the Leningradskiy fiziko-tekhnicheskii institut im. A. F. Ioffe AN SSSR (Leningrad Physicotechnical Institute imeni A. F. Ioffe AS USSR) of 5.5 mm size and having a resistivity of 150 ohm-cm. The voltage

Card 1/2

On some peculiarities of measuring ...

S/089/62/013/005/008/012  
B102/B104

applied to the detector was 20v. In various experiments with  $\text{Am}^{241}$ ,  $\text{U}^{233}$  and  $\text{U}^{235}$  the causes of the low-energy tails in the energy spectra of  $\alpha$ -particles and fission fragments were investigated. It was found that the recording zone of the pn junction does not contain any regions that reduce the pulse heights. Only boundary effects could explain this reduction quantitatively. In special experiments the kinetic energy of fragments from thermal fission of  $\text{U}^{235}$  was determined as a function of the fragment mass ratio. The drop in total kinetic energy of the fragments observed with symmetric fission was in agreement with other papers (e. g. J. Milton, J. Fraser, Phys. Rev. 7, No. 2, 27, 1961). The data obtained from the semiconductor counters were corrected for the low-energy tail. An integral neutron flux of  $\sim 5 \cdot 10^{11} \text{ cm}^{-2}$  was found to raise the detector resistivity from 150 ohm·cm to 1000 ohm·cm. There are 3 figures.

SUBMITTED: April 5, 1962

Card 2/2

40428

S/056/62/043/003/040/063  
B108/B102

AUTHORS: Selitskiy, Yu. A., Eysmont, V. P.

TITLE: Two types of nuclear fission

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 3(9), 1962, 1005 - 1008

TEXT: Various experimental data on the kinetic energy of fragments resulting from fission of U, Th, Pu etc. by gammas, alphas and thermal neutrons suggest that two types of fission exist: symmetric fission with lower energy and asymmetric fission with higher (cf. A. Turkevich, J. B. Miday. Phys. Rev., 84, 52, 1951). Such a hypothesis would also explain the large fluctuations in the kinetic energies of the fragments. Asymmetric fission is a slow process in which the excitation energy is uniformly distributed to all degrees of freedom of the nucleus. Symmetric fission is a fast process; the additional excitation energy is imparted to the translatory degrees of freedom of the fragments. The energy of symmetric fission increases with increasing excitation energy of the nucleus. The kinetic energy of the fragments increases with increasing

Car. 1/2

Two types of nuclear fission

S/056/62/043/003/040/063  
B108/B102

energy of the incident particles. This may explain the fact that the fragments of Bi fission by thermal (asymmetric fission) and by 90-Mev neutrons (symmetric fission) have approximately the same energies. There are 2 figures and 1 table.

SUBMITTED: April 2, 1962

Card 2/2

L 00199-63

EPR/EPF(c)/EPF(n)-2/ENT(m)/BDS--AFFTC/ASD/AFWL/

SS1--Ps-l/Pr-l/Pu-l--AR/WW/JD/JG

ACCESSION NR: AP3000032

S/0056/63/044/005/1445/1449

AUTHOR: Marov, G. I.; Nemilov, Yu. A.; Selitskiy, Yu. A.; Eysmont, V. P.

TITLE: Fission of uranium and thorium induced by sub-barrier deuterons

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 44, no. 5, 1963, 1445-1449

TOPIC TAGS: Uranium and thorium fission, sub-barrier neutrons, stripping, fragment distribution

ABSTRACT: The absolute fission cross sections of U-233, U-235, U-238, and Th-232 induced by 5.8--6.6 MeV deuterons were measured with a semiconductor detector, and the mechanism of the sub-barrier interaction resulting in the fission of the given nuclei was ascertained. n-type silicon having a resistivity on the order of 150 ohm-cm was used as the detector material. Angular anisotropy of the fragment distribution was disregarded. Simultaneously with registration of the fission events, pulses were fed to a 128-channel pulse-height analyzer for the determination of the fragment energy spectra. The fissions induced by the background neutrons did not exceed 20%. For 6.6 MeV deuterons, the cross

Card 1/2



L 10199-63

ACCISSION NR: AP3000032

sections were found to be 0.15, 0.16, 0.75, and 1.2 millibarns for Th-232, U-238, U-235, and U-233, respectively, with 10% accuracy. The investigation of the fragment kinetic-energy distributions and the analysis of the fission cross sections indicate that Th-232 and U-238 undergo fission mainly following deuteron capture, but that at least 70% of the U-235 and U-233 fission events are preceded by stripping. "The authors are indebted to S. A. Karamyan for assistance." Original article has: 2 figures, 4 formulas, and 1 table.

ASSCCIATION: none

SUBMITTED: 12Nov63

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: PH

NR REF SOV: 001

OTHER: 007

bm/CN

Card 2/2

L 14000-6; EWT(m)/T/EWA(m)-2 AFWL/BSO/ASD(p)-3/AEDC(a)/ASD(a)-5/AFMDC/SSD/ESD(t)  
 ACCESSION NR: AP4048647 S/0048/64/028/010/1724/1724

AUTHOR: Selitskiy, Yu. A.; Solov'yav, S. M. B

TITLE: Preparation of thin targets for charged-particle work 19

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v. 28, no. 10, 1964, 1724

TOPIC TAGS: charged particle, thin target, reactor physics, nuclear spectroscopy, deuteron

ABSTRACT: A simplified method of preparing thin 2 x 2 cm targets with a substrate thickness varying from  $4 \cdot 10^{-5}$  to  $10^{-3}$  gr/cm<sup>2</sup> and an active-area thickness of up to  $3 \cdot 10^{-4}$  gr/cm<sup>2</sup> for experimental research on charged particles is described. Targets were prepared by evaporating aluminum or silver and either uranium or thorium tetrafluoride on a glass plate covered with a thin layer of liquid soap. To separate the target, the glass plate was emersed in water at an angle. A frame with a round opening was then brought into contact with the target which, when positioned to cover the hole, clung to the frame without the use of an adhesive. It was found that targets

Card 1/2

L 14000-45

ACCESSION NR: AP4048647

prepared in this manner can withstand a deuteron flow of 0.5  $\mu$ amp  
for several hours.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3133

Card 2/2

NEMIOV, Yu.A.; PAVLOV, V.V.; SELITSKIY, Yu.A.; SOLOV'YEV, S.M.;  
EYSMONT, V.P.

Distribution of the masses and kinetic energies of fragments in the  
fission of  $\text{Th}^{232}$  by 12 Mev. deuterons. IAd. fiz. 1 no.4:633-638 Ap  
'65. (MIRA 18:5)

L 1635-66 EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/ENP(b)/EWA(m)-2 IJP(c) JD

ACCESSION NR: AP5016398

UR/0120/65/000/003/0219/0220  
539.234

AUTHOR: Selitskiy, Yu. A.; Solov'yev, S. M.

TITLE: Preparation of thin metal films and their use in targets

SOURCE: Pribery i tekhnika eksperimenta, no. 3, 1965, 219-220

TOPIC TAGS: particle accelerator target, metal film

ABSTRACT: G. Dearnaley's method (Rev. Sc. Instr., 1960, 31, 197) of preparing thin carbon films on a soap-coated glass plate was modified by substituting Al, Ag, Cu, Pb, and Bi for carbon. Vacuum-sprayed at  $10^{-4}$ — $10^{-5}$  torr metal films with a weight of 20—70 mg/cm<sup>2</sup> were obtained (Al <sup>1</sup> 20—300, Ag <sup>2</sup> 40—700, Cu, Pb, Bi, — 200 mg/cm<sup>2</sup>). Al and Ag films were used as backings for uranium-tetrafluoride and thorium targets. Orig. art. has: no figure, formula, or table.

ASSOCIATION: none

SUBMITTED: 22Apr64

ENGL: 00

SUB CODE: NP, MM

NO REF SOV: 001

OTHER: 001

Cord 1/1 AP

L 13172-66

ENT(m)/EWA(h)

ACC NR: AP6001152

SOURCE CODE: UR/0367/65/002/003/0460/0465

AUTHOR: Nemilov, Yu. A.; Selitskiy, Yu. A.; Solov'yev, S. M.; Eysmont, V. P.

ORG: None

TITLE: <sup>19,55</sup> ~~The~~ angular anisotropy of fission by sub-barrier neutrons

34  
B

SOURCE: Yadernaya fizika, v. 2, no. 3, 1965, 460-465

TCPIC TAGS: nuclear fission, fission product, deuteron bombardment, uranium, plutonium, angular distribution

ABSTRACT: This article presents the results of new measurements of the angular distribution of fission products for the fission of heavy nuclei by deuterons of various energies (below the Coulomb barrier). Specific details are given for  $U^{235}$  and  $Pu^{239}$ , and deuteron energies between 5.7 and 12.1 Mev. It is found that the angular distributions are appreciably anisotropic and that the energy dependence of the anisotropy of the odd-even nuclear targets has certain significant features. For example, for  $Pu^{239}$  the anisotropy increases with a decrease in deuteron energy, whereas for  $U^{235}$  it decreases and passes into the region of "negative" values ( $\partial f(0^\circ) / \partial f(90^\circ) < 1$ ). The significant features indicated are interpreted as the result of the specific feature of the interaction of low-energy deuterons with heavy nuclei. In conclusion, the authors note that, given data more precise than that available at present, the results of the present work may be employed for the calculation of the moments of inertia at the saddle point for nuclei which differ from those studied earlier according to the nucleon composition and excitation energy. Orig. art.

Card 1/2

L 13172-66

ACC NR: AP6001152

has: 4 figures.

SUB CODE: 18/ SUBM DATE: 20Feb65/ ORIG REF: 011/ OTH REF: 009

Card

2/2

L 64368-65 EWT(m)/EPF(n)-2/ENP(t)/EWP(b)/EWA(h) IJP(c) JD/WW/JG/DM  
 ACCESSION NR: AP5014534 UR/0089/65/018/005/0456/0459 38  
 539.172.13 + 539.17.015 3  
 AUTHOR: Nemilov, Yu. A.; Pavlov, V. V.; Selitskiy, Yu. A.; Solov'yev, S. M.;  
 Eysmont, V. P. 44 44 44 44 44  
 TITLE: Total and differential cross sections for the fission of uranium and  
 thorium by low-energy deuterons 27  
 SOURCE: Atomnaya energiya, v. 18, no. 5, 1965, 456-459  
 TOPIC TAGS: uranium, thorium, fission cross section, subbarrier deuteron, total  
 cross section, differential cross section, fission fragment detection  
 ABSTRACT: By registering the fission fragments with glass plates, the authors  
 were able to determine the total and differential cross sections for the fission  
 of  $\text{Th}^{232}$ ,  $\text{U}^{233}$ ,  $\text{U}^{235}$ , and  $\text{U}^{238}$  by deuterons of energy much lower than the Coulomb  
 barrier (6.6 MeV and below). Ordinary photographic plates were used, the emulsion  
 serving as a protection for the surface. The targets were made by evaporating  
 fluorides of uranium and thorium on thin silver substrates. The deuterons were ac-  
 celerated in a cyclotron and their energy was determined accurate to 0.1 MeV. The  
 experimental set-up is illustrated in Fig. 1 of the Enclosure. The results are  
 compared with published data in which the cross sections have been obtained with

Card 1/3



L 64368-65

ACCESSION NR: AP5014534

semiconductor detectors at larger deuteron energies. The differential cross sections of all nuclei varied smoothly within a narrow range at the investigated deuteron energies. The anisotropy of the angular distribution was quite smooth in all cases, except that for  $U^{235}$  the angle distribution of the fragments had a maximum not at  $0^\circ$  but at  $90^\circ$  to the beam. Although the results did not differ greatly from those obtained by others, it is indicated that the reactions preceding fission of nuclei having different neutron fission thresholds and bombarded by subbarrier deuterons may differ noticeably from those at higher energies. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 23Jun64

ENCL: 01

SUB CODE: NP

NR REF SOV: 005

OTHER: 006

Card 2/3

L 64368-65

ACCESSION NR: AP50145 34

ENCLOSURE: 01

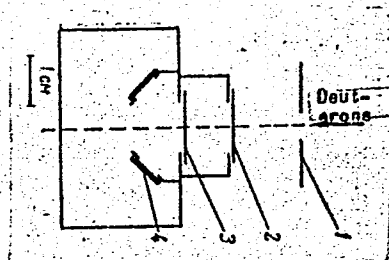


Fig. 1. Setup for the measurement of fission cross sections:

1 - Diaphragm, 2 - foils for the measurement of deuteron energy, 3 - target, 4 - glass plate to register the fission fragments.

*llc*  
Card 3/3

L 37007-66 EWT(m)

ACC NR: AP6016809

(W)

SOURCE CODE: UR/0367/66/003/001/0065/0072

AUTHOR: Selitskiy, Yu. A.; Solov'yev, S. M.; Eysmont, V. P.

ORG: none

TITLE: Characteristics of the fission of  $\text{Th}^{232}$  by deuterons and the dependence of the kinetic energy of the fragments on the excitation energy of the fissioning nuclei

SOURCE: Yadernaya fizika, v. 3, no. 1, 1966, 65-72

TOPIC TAGS: thorium, fission product, nuclear fission, deuteron reaction, kinetic energy, excitation energy

ABSTRACT: To obtain further information on the dependence of the kinetic-energy distribution of fission fragments on the excitation energy, the authors have undertaken a comparison of the properties of mass and kinetic-energy distributions of  $\text{Th}^{232}$  fissioned by 9 and 12.1 Mev deuterons. The energies of paired fission fragments were measured with previously described semiconductor-detector apparatus (YaF v. 1, 677, 1965). Approximately 10,000 fragment pairs were registered for each value of the deuteron energy. The measurements yielded the fragment mass distribution, the average fragment energies, and the dispersion of the determined masses, as well as the distributions for the kinetic energy at fixed masses. The results, together with data obtained by others, are analyzed from the point of view of the model of "nuclear shells in fragments" and the postulated existence of two independent types of fission (symmetrical and asymmetrical). It is shown that if the model of two types of

Card 1/2

L 37087-66

ACC NR: AP6016809

fission is assumed, most of the experimental data obtained at medium energies can be reconciled with the theory, whereas the shell-effect, surface tension, and viscosity concepts, which are physically more clear than the two-fission model, have not been sufficiently well developed to serve as a basis for a quantitative analysis. Orig. art. has: 3 figures, 8 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 22Apr65/ ORIG REF: 010/ OTH REF: 014

Card 2/2

VEVYURKO, I.A., kand.tekhn.nauk; RAZUMOVSKIY, Yu.V., inzh.; SELIVAKHIN,  
A.I., inzh.

D.C. motor without slide contacts. Vest. elektroprom. 33 no.3:  
34-35 Mr '62. (MIRA 15:3)  
(Electric motors--Direct current)

SELIVANCHIK, Ya.V.; KOLKOTIN, N.M.; FEDULOV, S.V.; MAKAROVA, G.S.;  
VOLKOV, Yu.A.; SHITOVA, L.N., red.izd-va; BOROVNEV, N.K.,  
tekhn.red.

[Handbook on methods of repairing building machinery]  
Instruktsiia po metodam remonta stroitel'nykh mashin. Moskva,  
Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materialam,  
1961. 30 p. (MIRA 15:2)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut  
organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'-  
stvu.

(Building machinery--Maintenance and repair)

MALOLETMOV, Ye.K., inzh.; GORDEYEV, L.F., inzh.; SELIVANCHIK, Ya.V.,  
inzh.; EYDES, A.G., inzh.; KRAMOSHCH, I.L., inzh., nauchnyy  
red.; NAUKOVA, G.D., tekhn. red.

[Organization and techniques of the repair of building machinery]  
Organizatsiia i tekhnologiya remonta stroitel'nykh mashin. [By]  
E.K.Maloletkov i dr. Moskva, Gosstroizdat, 1962. 272 p.

(MIRA 15:7)

(Construction equipment—Maintenance and repair)

L 00740-66 EWT(m)/EPT(c)/T BW/DJ

ACCESSION NR: AP5021990

UR/0286/65/000/014/0065/0065  
665.4/.5

AUTHOR: Garzanov, G. Ye.; Vinner, G. G.; Maloletkov, Ye. K.; Bogdanov, Sh. K.;  
Sergiyenko, V. G.; Petyakina, Ye. I.; Selivanchik, Ya. V.; Vertlib, Ya. Ye.;  
Gusman, M. Ye.; Shames, F. Ya.; Smirnov, M. I.; Granat, A. M.; Bulantseva, T. P.;  
Krylova, T. A.

TITLE: A method for producing hydraulic fluid. Class 23, No. 172947

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 65

TOPIC TAGS: hydraulic fluid, petroleum product

ABSTRACT: This Author's Certificate introduces a method for producing hydraulic fluid based on petroleum products. The efficiency of the fluid at low temperatures is improved by using a velosite distillate with a flash point of 115-120°C and a viscosity of less than 2200 centistokes at -40°C.

ASSOCIATION: Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi (Scientific Research Institute for Organization, Mechanization and Technical Assistance)

Card 1/2



L 00740-66

ACCESSION NR: AP5021990

SUBMITTED: 14Aug64

NO REF SOV: 000

ENCL: 00

SUB CODE: FP

OTHER: 000

*SP*  
Card 2/2

L 01805-67 EWT(m)/T DJ

ACC NR: AP6030592 (AN)

SOURCE CODE: UR/0413/66/000/016/0074/0074

INVENTOR: Garzanov, G. Ye.; Petyakina, Ye. I.; Bagryantseva, P. P.;  
Shames, F. Ya.; Ravikovich, A. M.; Boshchevskiy, S. B.; Maloletkov, Ye. K.;  
Selivanchik, Ya. V.; Gusman, M. Ye.; Skvirskiy, P. A.; Aver'yanov, V. A.;  
Uzunkoyan, P. N.; Pisarchik, A. N., Mikhaylov, Yu. A.; Belogradskiy, A. P.;  
Bayevskiy, F. S.; Fomin, N. I.

ORG: none

TITLE: Method of obtaining a hydraulic lubricant. Class 23, No. 185000.  
 [Announced by the Scientific Research Institute for Organization, Mechanization,  
 and Technical Assistance to Construction (Nauchno-issledovatel'skiy institut  
 organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966,  
 74

TOPIC TAGS: lubricant, lubricant additive, antioxidant additive, polymethacrylate,  
 hydraulic lubricant

ABSTRACT: An Author Certificate has been issued for a method of obtaining a  
 hydraulic lubricant by means of additives with an oil base. To expand the operat-  
 UDC: 621.892.8:621.226

L 01805-67

ACC NR: AP6030592

ing temperature range of oil a mixture of commercial oil and diesel-oil residue are taken as the oil base to which a multifunctional additive is added, such as EFO, an antioxidant agent|| such as octadecylamine, and a depressing agent, such as a polymethacrylate. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 25May65/.

Card 2/2

*hah*

SELIVANENKO, A.S.

Excited state of an imperfect molecular crystal. Izv. AN SSSR. Ser.  
fiz. 20 no. 4:383 Ap. '56. (MLRA 10:1)  
(Luminescence) (Fluorescence)

AUTHOR SELIVANENKO, A.S. PA - 2061  
 TITLE The Exiton State of an Imperfect Molecular Crystal (Eksitonnoe sostojanie nesovershennogo molekulyarnogo kristalla).  
 PERIODICAL Zhurnal Eksperimental'noi i Teoret. Fiziki, 1957, Vol 32, Nr 1, pp 75-81 (U.S.S.R.)  
 Received 3/1957 Reviewed 4/1957  
 ABSTRACT This work finds a solution of Schroedinger's equation for an imperfect molecular crystal. Here the behavior of an incited state (exiton) on the boundary of a molecular crystal is investigated. For the sake of simplicity a cubical lattice with a molecule in the elementary cell is considered here. The oscillations of the molecules are neglected, which means that a "free exiton" is investigated here. First the equation for the steady state of the molecular crystal is written down and the quantities contained in the equation are explained. Next, the equation for the imperfect crystal is written down, for it is assumed that the crystal is cut along a plane and that interaction between the molecules of different halves is eliminated. The considered problem is reduced to a one-dimensional one. On this occasion the exiton wave is divided in three directions and these three waves propagate independently. The following case is also considered: the molecules are coupled not only with their neighbours but also enter into slight interaction "through a molecule". Next, the perturbation operator is considered. Conclusions: The solution found exists only within the range of a surface perturbation of the crystal, i.e. that the solution exists only on the surface. A plane exiton wave  $e^{i(kx - t)}$  exists in the crystal, where the influence of its surface on

Card 1/2

The Exiton State of an Imperfect Molecular Crystal. PA - 2061  
 the interaction of the molecules is not perceptible any more. The surface exiton wave (or simply the surface exiton) exists on the surface of the crystal. The levels of the exiton existing in the inner crystal. The number of the lattice constants which penetrate the surface exiton is determined by the penetration depth of the perturbations from the surface. The amount of the levels of the surface exiton need not exceed the amount of lattice constants by which the superficial exiton penetrates to the depth of the lattice. If a certain plane cell contains a molecules each level is split up into a bands. Each of these bands has for its part a quasihomogenous structure which is due to the superficial wave-vector  $k_{\parallel}$  of the exiton. For the spectral determination of a surface exiton crystals of great interaction energy have to be investigated (sublimation heat of the order of magnitude 10 kkal/mol). The calculation method used here is also suited for investigations of other problems concerning the influence of the inhomogeneities of the lattice of a molecular crystal.

ASSOCIATION Physical Institute "P.N.LEBEDEV" of the Academy of Sciences of the USSR.  
 PRESENTED BY  
 SUBMITTED  
 AVAILABLE Library of Congress

Card 2/2

STANIVANENKO, A.S.

AUTHOR: Selivanenko, A. S.

51-4 -1-14/26

TITLE: On the quantum-Mechanical Calculation of Scattering Free  
Excitons on Phonons in a Molecular Crystal.  
(O kvantovomekhanicheskom vychislenii rasseyaniya  
svobodnogo eksitona na fonone v molekulyarnom kristalle.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1,  
pp. 92-95. (USSR)

ABSTRACT: The hypothesis and calculations of the diffusion  
mechanism of exciton motion in a crystal, and experimental  
studies based on this hypothesis (Ref.1) have suggested  
a quantum-mechanical calculation of parameters for such  
motion. The work of Ansel'm and Firsov (Ref.2) was  
the first of that kind. The present paper, based on  
Davydov's work (Refs.3, 4), includes collisions of  
free excitons with phonons of a molecular crystal  
lattice. Typical molecular crystals are: naphthalene,  
Card 1/3 benzene, anthracene and naphthacene. All these crystals

On the quantum-Mechanical Calculation of Scattering Free Excitons  
on Phonons in a Molecular Crystal.

51-4 -1-14/26

have one property in common, which is that interaction between molecules in them is small compared to internal molecular forces. In the zero approximation molecular crystals may be represented as assemblies of non-interacting molecules. The present author deals with the problem assuming weak interaction between molecules. He obtains the probability of scattering of an exciton in the form of a sum of probabilities of scattering of the exciton with emission and of scattering with absorption of a phonon. The paper is entirely theoretical. The author thanks V. L. Levshin, A.S. Davydov and V. A. Chuyenkov for their advice. There are 6 references, of which 3 are Russian, 1 Ukrainian, Card 2/3 1 English and 1 American.

51-4-1-14/26

On the quantum-Mechanical Calculation of Scattering Free Excitons  
on Phonons in a Molecular Crystal.

ASSOCIATION: Physics Institute imeni P. N. Lebedev, Academy of  
Sciences of the USSR. (Fizicheskiy institut im. P. N.  
Lebedeva, AN SSSR.)

SUBMITTED: March 18, 1957.

AVAILABLE: Library of Congress.

1. Molecular crystals-Exciton motion-Theory

Card 3/3



SELIIVANENKO, A. S.

AUTHOR: Selivanenko, A. S.

51-4 -1-26/26

TITLE: Kinetic Parameters of a Free Exciton for Certain Types of Molecular Crystals. (Kineticheskiye parametry svobodnogo eksitona dlya nekotorykh tipov molekulyarnykh kristallov.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.1, pp. 122-124. (USSR)

ABSTRACT: The author discusses crystals whose molecules do not possess a dipole moment, e.g. benzene, naphthalene. In an earlier paper (Ref.1) the present author obtained probabilities of scattering of a free exciton with emission and absorption of a phonon. From the formulae of Ref.1 the author makes some estimate of parameters of a free exciton in a naphthalene crystal. Taking the exciton mass in naphthalene to be about  $10^{-27}$  g, the author finds the average time between exciton-phonon collisions to be  $5 \times 10^{-9} T^{-1/2}$  sec, where T is the absolute temperature. This result applies at temper-

Card 1/3

51-4.-1-26/26

Kinetic Parameters of a Free Exciton for Certain Types of  
Molecular Crystals.

atures above  $10^0$  K. The mean free path for excitons in naphthalene is found to be  $10^{-4}$  cm. These results hold if the exciton experiences no less than 10 collisions during its lifetime. To verify the theoretical results given by the author it would be necessary to work with extremely pure and well-formed monocrystals at the liquid-nitrogen temperature, paying special attention to conditions under which the speed of migration of a free exciton would be great. The author thanks V.L. Levshin for his interest, and V.A. Chuyenkov for advice. There are 4 references, 3 of

Card 2/3 which are Russian and 1 English.

Kinetic Parameters of a Free Exciton for Certain Types of  
Molecular Crystals. 51-4-1-26/26

ASSOCIATION: Physics Institute imeni P.N. Lebedev, Academy of  
Sciences of the USSR. (Fizicheskiy institut im. P.N.  
Lebedeva AN SSSR.)

SUBMITTED: October 14, 1957.

AVAILABLE: Library of Congress.

1. Napthalene crystals-Excitation-Theory
2. Napthalene  
crystals-Phonon-Absorption
3. Napthalene crystals-Phonon-  
Emission

Card 3/3

USCOMM-DC-55,050

KURSKIY, Yu.A.; SELIVANENKO, A.S.

Theory of luminescence quenching in liquid solutions. Opt. i spektr.  
8 no.5:643-650 My '60. (MIRA 13:9)  
(Luminescence)

POPOV, Yu.M.; SELIVANENKO, A.S.

Luminescence of a free exciton in a molecular crystal. Opt. i spektr.  
9 no.2:260-261 Ag '60. (MIRA 13:8)  
(Luminescence) (Excitons)

SELIVANENKO, A.S.

Scattering of free excitons on the lattice defects of a molecular  
crystal. Fiz.tver.tela 3 no.4:1009-1014 Ap '61. (MIRA 14:4)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR, Moskva.  
(Excitons---Scattering) (Crystal lattices)

SELIVANENKO, A. S., Cand Phys-Math Sci -- "Certain problems  
of the excitonic theory of energy migration in molecular  
crystals." Minsk, 1961. (Acad Sci BSSR. Joint Council of  
Inst of Phys, Inst of Math and Comput <sup>or Engineering,</sup> ~~Tech~~, and Dept of Phys  
of Solids <sup>Body</sup> and Semiconductors) (KL, 8-61, 228)

- 43 -

32056  
S/051/61/011/005/018/018  
E073/E535

24,3500 (also 1137, 1138, 1144)

AUTHOR: Selivanenko, A.S.

TITLE: On the relaxation times of excitons in molecular crystals

PERIODICAL: Optika i spektroskopiya, v.11, no.5, 1961, 694

TEXT: During interaction of light with a crystal, excitons may be generated with momentum values equalling that of the light-wave. Generally, the kinetic energy of such an exciton will not be equal to the average thermal energy of the crystal. Therefore, the exciton will come into thermal equilibrium with the crystal as a result of interaction with the lattice vibrations. For the case that the minimum of the exciton zone does not coincide with the exciton momentum, which equals zero, and the zone is sufficiently wide (i.e. the width  $\Delta \epsilon \gg kT$ ), the relaxation time or the time for establishing thermal equilibrium of the exciton with the phonons can be easily estimated. A similar solution for electrons in semiconductors was published by O. N. Krokhin and Yu. M. Popov (Ref.3: ZhETF, 38, 1589, 1960) and in the same way the problem in this case reduces to solving the kinetic

Card 1/4

X



On the relaxation times of ...

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E073/E535

equation

$$\frac{\partial f(\epsilon)}{\partial t} = \frac{1}{p} [G(\epsilon)f(\epsilon)] \quad (1)$$

In this equation the term describing the diffusion flow of the electrons in the energetic space has not been included, since in the given case it is sufficient to take into consideration only the term which expresses the spontaneous emission of phonons. In the above equation  $f(\epsilon)$  is the exciton energy distribution function,  $p$  - momentum of the exciton and

$$G(\epsilon) = \frac{a^3 \mu}{(2\pi)^2 \hbar^4} \int_0^{\frac{4\pi e^4}{4\hbar}} \frac{1}{\Omega_{qj}} \cdot F \cdot 36q^2 a^2 \cdot \hbar \Omega_{qj} dq \quad (2)$$

where  $a$  - lattice constant,  $\mu$  - effective mass of the exciton,  $e$  - electronic charge,  $\Omega_{qj}$  - frequency of lattice vibration with the momentum  $q$  of the  $j$ -th branch

$$F = \frac{3}{M} \left[ \frac{\hbar^2 \gamma}{m\omega} \right]^2 \frac{1}{a^8}$$

Card 2/4

On the relaxation times of

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E073/E535

In this equation  $\gamma$  - oscillator strength of the electron transition with the frequency  $\omega$  for the exciton,  $m$  - electron mass,  $M$  - mass of the entire molecule in the crystal. Finally, the following differential equation is obtained:  $\frac{dE}{dt} = -BE^2$  (3)

where  $E$  is the mean energy of the relaxation exciton and

$$B = 420 \frac{\mu}{Mm^2} \frac{e^4}{(\hbar\omega)^2} \gamma^2 \frac{1}{a^3}$$

Solution of Eq.(3) permits determining the relaxation time. For  $m \sim \mu \sim 10^{-27}$  g;  $\hbar\omega \sim 2$  eV;  $\gamma \sim 0.1$ ;  $a \sim 7 \cdot 10^{-8}$  cm;  $M \sim 10^{-22}$  g, the relaxation time of the excitons with energies  $E \gg kT$  to thermal ones (room temperature)  $E \sim kT$  is  $\sim 5 \cdot 10^{-10}$  sec. With an accuracy up to the constant  $B$ , Eq.(3) is identical to Eq.(7) of the paper by Krokhin and Popov (Ref.3). However, for the exciton the relaxation speed does not depend on the type of lattice vibration.

Card 3/4

On the relaxation times of ...

S/051/61/011/005/018/018  
E073/E535

since the exciton charge equals zero and it interacts equally with optical and acoustical phonons. Acknowledgments are expressed to O. N. Krokhin and Yu. M. Popov for their comments. There are 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc. The English-language reference reads as follows: Ref.2: I. I. Hopfield, Phys. Rev., 112, 1555, 1958. X

SUBMITTED: May 9, 1961.

[Abstractor's note: Complete translation.]

Card 4/4

45076

S/051/63/014/001/008/031  
E039/E192

29 00  
AUTHORS: Sveshnikov, B.Ya. (deceased), Selivanenko, A.S.,  
Shirokov, V.I., and Kiyanskaya, L.A.

TITLE: Dependence of the quenching of fluorescence by foreign  
substances on the viscosity of the solution. I.  
(Theoretical part)

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 45-48

TEXT: If instead of M. Smoluchowski's hypothesis (Zs. phys.  
Chem., v.92, 1917, 129) about infinitely large rate of absorption  
of the differing particles by a sphere, the diffusion equations  
are solved for the case of spherical symmetry assuming finite and  
relatively small absorption rates, then the resulting expressions  
show a good agreement with the experimental curves. Concentration  
of quenching molecules  $c_0 = 18 \times 10^{19}$  molecules/cm<sup>3</sup>, velocity  
 $W = 209.8$  cm/sec,  $R_1 = 5 \times 10^{-8}$  cm, and  $R_2 = 2 \times 10^{-8}$  cm, were  
used to illustrate the above point. Curves showing the dependence  
of the change in luminescent yield on the concentration of  
quenching agent calculated from two forms of the decay law for  
Card 1/2

Dependence of the quenching of ...

S/051/63/014/001/008/031  
E039/E192

fluorescence also showed good agreement. Some auxiliary data relating fluorescence output with the viscosity of the solution are also included.

There are 2 figures.

SUBMITTED: October 30, 1961

Card 2/2

SELIVANENKO, A.S.; FOM, M.M.

Determination of the degree of molecular association from the concentration quenching of luminescence. Zhur.fiz.khim. 37 no.7:1601-1603 J1  
1963. (MIRA 1742)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

SELIVANENKO, A.S.

Theory of luminescence quenching. Opt. i spektr. 16 no. 4:  
695-696 Ap '64. (MIRA 17:5)

L 45714-65 EWA(k)/FBD/EWG(r)/EWT(1)/EWT(m)/EEC(k)-2/EEC(t)/T/EWP(t)/EEC(b)-2/  
EWP(k)/EWP(b)/EWA(m)-2/EWA(h) Pm-4/Pn-4/Pz-4/Po-4/Pf-4/Peb/Pi-4/P1-4 IJP(c)

ACCESSION NR: AP5012582 WG/JD/AT

UR/0181/65/007/005/1567/1568

AUTHOR: Selivanenko, A. S.

TITLE: Generation of superconducting states in pure semiconductors illuminated  
by a powerful laser beam

SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1567-1568

TOPIC TAGS: pure semiconductor, superconductivity, carrier concentration, stron-  
tium titanate, ruby laser

ABSTRACT: When pure semiconductors, such as strontium titanate ( $\text{SrTiO}_3$ ), are  
illuminated by a powerful (of the order of several megawatts) laser beam, they  
exhibit superconducting properties. Thus, it has been postulated that during  
laser action (tenths of nanoseconds),  $10^{20}$ — $10^{21}$   $\text{cm}^{-3}$  carrier concentrations in  
the conduction zone of semiconductors at  $10^{-4}$  cm are possible. The above was con-  
firmed experimentally by N. G. Basov (DAN SSR, 149, 1963, 561; Nobel lecture,  
Stockholm 1964), who illuminated a GaAs semiconductor by a ruby laser beam, thus  
achieving population inversion and a degenerate state at  $10^{-4}$  cm. In the case of  
 $\text{SrTiO}_3$ , investigated by various Western authors, superconductivity was observed  
at  $\sim 10^{18}$   $\text{cm}^{-3}$  concentration of free electrons. It was shown (F. V. Bunkin,

Card 1/2



L 45714-65

...SSION NR: AP5012582

A. M. Prokhorov, ZhETF, 48, 1965, 120) that although the width of the forbidden zone in  $\text{SrTiO}_3$  and the quantum energy of the ruby laser are  $\sim 3$  and 1.75 eV, respectively, the cross section of a two-quantum band to band absorption for fields  $\leq 10^5 \text{ w.cm}^{-1}$ , is of the order of a single quantum process for a corresponding quantum energy. [YK]

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva, Moskva (Physics Institute)

SUBMITTED: 21Dec64

ENCL: 00

SUB CODE: EC

NO REF SOV: 003

OTHER: 003

ATD PRESS: 4001

Card 1/2

L 3182-66 EWT(1)/I/EWA(h) IJP(c) AT

ACCESSION NR: AP5014597

UR/0181/65/007/006/1876/1877

AUTHOR: Vul, B. M.; Selivanenko, A. S.

TITLE: On superconductivity in semiconductors

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1876-1877

TOPIC TAGS: semiconductor, superconductivity, semiconductor superconductivity, electron interaction, hole interaction

ABSTRACT: The state of superconductivity in semiconductors is attributed to interaction between electrons with the participation of a crystal lattice (interaction by virtual phonons). Analogous interaction can also take place between the holes in a semiconductor. Interaction between holes through virtual phonons should be identical to interaction between electrons. The criteria for a substance having a hole superconductivity should thus be: a large effective hole mass, a high dielectric constant of the medium, and a multivalley shape of the valence zone. The discovery of substances in which electron or hole superconductivity could be produced would be particularly advantageous in creating special degenerated p-n transitions. The diagram of energy levels for such a p-n transition at  $V = 0$  is shown in Fig. 1 of the Enclosure. Orig. art. has: 1 formula and 1 figure. [JA]

Card 18.

L 3182-66

ACCESSION NR: AP5014597

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics  
Institute, AN SSSR) 44, 55

SUBMITTED: 13Jan65

ENCL: 01

SUB CODE: SS

NO REF SOV: 002

OTHER: 000

ATD PRESS: 4018

Card 2/3

L 3182-66

ACCESSION NR: AP5014597

ENCLOSURE: 01

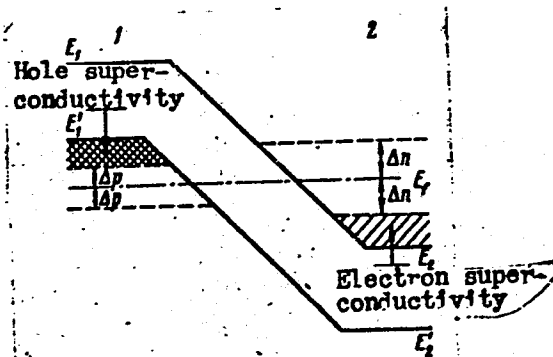


Fig. 1. Diagram of p-n transition

$E_f$  - Fermi level;  $2\Delta_p$ ,  $2\Delta_n$  - energy gaps in superconductor;  $E_1$ ,  $E_2$  - bottom of the conduction band;  $E'_1$ ,  $E'_2$  - bottom of the forbidden band.

PC

Card 3/3